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AUTHOR	Hogan, Kerry
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ABSTRACT

Designed for parents or teachers of young children with autism, this guide outlines the development stages in nonverbal or visual thinking, communication, imitation, and play in children with and without autism. In the section on nonverbal or visual thinking skills, the paper addresses simple sorting and matching, the purpose of sorting, and more complicated sorting and matching techniques. The section on communication discusses expressing needs, expressing specific needs, using gestures, joint attention, using visual information to communicate, signing, using words, and understanding communication. Communication pointers for encouraging communication are provided. The section on imitation reviews the developmental stages, including the imitation of facial movement, the imitation of actions that objects' do not usually perform, imitation of actions that a child cannot see himself perform, object imitation, imitation of body movements, imitating two actions at one time, and imitation of a sequence of actions. The final section on play discusses early social play, toy play, and play with peers. Throughout the paper, sample activities for children with autism have been included as examples of teaching techniques that can be adapted to different developmental levels. The paper closes with a discussion of the unique development of children with autism. (CR)

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Nonverbal Thinking, Communication, Imitation, and Play Skills From a Developmental Perspective

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Nonverbal Thinking, Communication, Imitation, and Play Skills From a Developmental Perspective

All children, with or without autism, progress through a series of developmental levels as they master new skills. This outline is intended to serve two purposes. First, the stages of development observed in Nonverbal Thinking, Communication, Imitation, and Play are described. Many parents have found it helpful to become familiar with these stages as a way of identifying their child's current level of development and as an aid to planning future goals. Some, sample activities have also been included as examples of teaching techniques that can be adapted to these different developmental levels. Most of these developmental stages are common to both children with autism and typically developing children. The teaching activities described here, however, are specifically adapted to the learning styles of children with autism.

Children with autism usually demonstrate an uneven pattern of development with nonverbal skills typically being a strength. Teaching activities are most successful when they are matched to a child's current developmental level. Regardless of each child's starting point, all children will acquire more skills and pass through each developmental stage at his or her own pace. The following activities are intended to be examples of activities that promote development at each of these stages. Although some more complicated suggestions are included, the stages of development described here are most relevant to early learning so may be most helpful to the parents of young children. These suggestions are far from comprehensive and should be adapted to take advantage of each individual child's strengths and interests.

Nonverbal or Visual Thinking Skills:

This is an area of strength for children with autism. When teaching a new skill try to think of how you could teach this skill visually. Using a visual approach is more likely to lead to success when teaching any new skill.

Simple Sorting and Matching

1. The first thing that a child learns in this area is to coordinate visual skills with motor skills. In its simplest form this is the ability to look at an object, reach for it, and grab it. Once a child can hold an object s/he will learn to manipulate them in more complex ways such as putting objects into certain places that make sense visually. This skill can be developed, in part, by highlighting the area or container in which you want your child to place each object. For example, when there is only one hole at the top of a container, it is easy for a child to see where to put the object. Some children will learn to take objects out of containers before they begin to place objects in containers.

2. Next a child will learn to differentiate some objects from others. This is the first step in learning to sort. One of the most successful ways to teach this skill is to create a sorting task that eliminates the possibility of making mistakes. For example, you might make a container with a narrow opening for placing cards and a square opening for placing blocks. Neither object will be able to fit in the other object's opening, so it will be very clear that some objects are different from others and belong in different places.

3. Once a child has learned to sort objects in a task that eliminates the chance for error, he/she can learn to sort two objects into containers that are similar. For example, your child might learn to put spoons in one container and balls in another container. It is easier to learn this task if you use obviously different objects, clear containers so your child can see the objects that go into each container, and samples of each object clearly placed on or in each container. Your child will also find it easier to sort objects if the objects in each category are identical (e.g., identical white plastic spoons and identical yellow tennis balls).

As your child masters the ability to sort objects, you can change some characteristics of the task. It is important to remember, however, to change only one aspect of the task at a time so that your child does

not become frustrated or confused. For example, you might want to encourage your child to sort groups of objects that are increasingly similar (e.g., instead of spoons and balls, sorting spoons and knives) but you should not introduce this change at the same time that you start using opaque containers.

4. Another type of sorting that is learned fairly early on is the ability to sort by concrete features of objects such as color and shape. Again start by making this task as easy as possible. For example, start by sorting objects by color rather than pictures. Sorting objects is easier because objects vary on more different features than pictures. The differences between objects, therefore, are more likely to be meaningful to your child than the differences between pictures. As the objects become more and more similar your child will become more attentive to color as the distinguishing feature. For example, you may progress from sorting white spoons and yellow tennis balls to yellow tennis balls and red super balls, and then to red super balls and yellow superballs.

5. Puzzles are also a sorting task because your child is learning to place different objects into different containers. Puzzles are like the error free sorting tasks described earlier because each piece can only fit into one place. The easiest puzzles are "inset" puzzles where the pieces actually fit into the right shaped hole. These puzzles can be made even easier by copying the picture on the puzzle piece and placing it into the hole where the piece goes. Puzzles of this kind will be mastered long before simple "jigsaw" types of puzzles are mastered. Remember to choose puzzles that are compatible with your child's motor skills. Young children usually begin with puzzle that have big pieces and handles to help them hold and turn each piece.

6. A more difficult visual skill is matching. Matching is often more difficult than sorting because it does not involve placing the matched objects into containers so the task is less visually clear. People usually think of matching as an activity that involves matching pictures, letters, numbers, etc. However, matching could also include activities that require matching identical objects or matching objects to drawings or photographs.

7. Once your child has mastered the ability to sort a variety of different types of objects, you might assess whether or not s/he understands pictures. One way to assess this skill is to see if your child can match objects to pictures. The first step in this skill is to see if your child can match an object to a picture that is the same size and color of the object. This task is even easier if the sample picture is presented as an inset puzzle so that the object actually fits into the picture. You can create an inset picture by cutting out the shape of the object in a piece of Styrofoam, placing a life size picture into that hole, and then supporting that picture by placing a second piece of Styrofoam under the first. Once your child can match objects into a container displaying an identical picture you can try matching objects to flat pictures, matching objects to pictures that are smaller or somewhat different in color (e.g., black and white).

The next step in learning about pictures is to have your child match objects and pictures that are not identical. For example, you might return to sorting by placing a picture on the outside of an opaque container and then have your child sort objects by matching them to the pictures on the containers.

It is important to master matching objects to pictures before beginning activities that match pictures to other pictures. The object/picture step ensures that our child understands the meaning of pictures and not just that they are different images that can be sorted or matched by their visual characteristics.

Different types of pictures may be more or less meaningful to your child. You will have to experiment to see what works best. Some children find photographs easy to understand. For other children photos are too literal. They think that a photo can only represent the one object that is in the picture and no other object. Children who react this way to photos are more likely to be successful with drawings. As a child's matching skills and understanding of pictures improves, pictures can be more abstract. For example, simple line drawings of shapes might eventually be used to match objects that have that shape.

8. When you are sure that your child understands pictures you might try tasks that involve sorting pictures. Again, start with the types of tasks that make sorting easy. For example, the pictures in each group should be identical and there should be samples of the pictures on the outside of each container.

You might even place the pictures on different types of cards to highlight the differences between the pictures. As your child masters these easier forms of sorting, you can move to harder types of sorting just as you did with objects.

The Purpose of Sorting:

Many parents ask why we spend so much time teaching children to sort objects and pictures.

First, sorting is a skill that is appealing to children with autism because it takes advantage of their visual strengths. When a child is beginning to learn to sit and work, it is helpful to use tasks that are meaningful and easy to master.

Second, sorting draws a child's attention to the differences between objects. Nonautistic children are able to learn about these differences using language. They will ask questions such as, "what is this?" and adults will teach them the verbal labels that make differences between objects meaningful. Labels are not as meaningful to children with autism but visual differences are.

Third, when a child has learned to sort objects and pictures on the basis of their visual differences, they are prepared to learn more difficult concepts through the process of sorting. They are also able to start learning the labels of objects because the differences between objects has already been drawn to their attention, making verbal labels more meaningful. The following stages of visual development describe how more complicated concepts can be taught visually.

More Complicated Sorting and Matching Techniques

9. When a child has learned to sort identical pictures and objects, s/he can start to sort objects that are not identical but all belong to the same category. Using the spoon and ball example, the child who can sort identical plastic spoons and tennis balls can then begin to sort different sizes and types of spoons and different sizes and types of balls. This draws a child's attention to the idea that objects belong to categories: that spoons are not just white plastic spoons, but are things that have a handle and a scooped area on the end. Learning about categories is a conceptual type of learning. Almost any category or concept can be taught visually. The idea of color can be taught by having a child sort pictures that are different but all have the same color.

10. Academic concepts and skills can also be taught using this method. Letters and numbers can be sorted. For example, words that start with 'B' and 'T' can be sorted into containers that display the letters 'B' or 'T.' Sight words can be taught by sorting different words. Number concepts can be taught by matching cards with several stickers to cards on which the corresponding numeral is written.

Simple concepts such as 'same' and 'different' can be taught using sorting. You can give your child several bags of objects, some containing identical objects and some containing different objects. By learning to attend to the differences between the two objects, your child can learn that some objects are the same and some are different.

11. Sorting and matching can be useful for developing language because it gives a child many opportunities to hear a verbal label associated with a visual cue such as an object or picture. Every time your child puts an object into a container you can say the label that belongs to the object. For example, as your child sorts spoons and balls you can say 'spoon' or 'ball' every time s/he drops a spoon into the container. Remember to use the word you would expect your child to use. For example, your child would be more likely to use the word ball rather than the word tennis ball. Verbal children who repeatedly hear the verbal label associated with a meaningful object s/he may start repeating the word during the task and may eventually start using it in natural contexts. Nonverbal children who hear this label are more likely to understand that label when they hear it in other situations.

These stages of development of visual thinking skills have been described in detail because this is such an important way for children with autism to learn. Almost everything that we teach will, in some way, involve visual skills. Whenever you teach a concept you need to be sure that the task is meaningful to

your child. Using visual instruction is one of the best ways to ensure that what your child is learning is meaningful.

Communication

All children go through stages while learning to communicate. Children with autism go through the same stages but may stay at one stage for a longer period of time or may pass through these stages in a different order. There are also some forms of communication that promote communication development in children with autism but are not always necessary for typically developing children. Following are the stages of communication development seen in both typically developing and autistic children.

1. Expressing needs. This is the most basic type of communication. Expressing needs involves making some indication of need without necessarily directing the communication toward another person. At this stage the child may only have one way of communicating a variety of different needs. For example, a baby cries when hungry but also cries when sleepy.

2. Expressing specific needs. This is usually motor communication which may include reaching for objects, taking a person to an object, bringing an object to a person, or putting a person's hand on an object. At this stage the child has a specific idea about his or her needs and is trying to communicate this need. The child's intentions, however, may not always be clear to the adult.

If your child is having difficulty moving from the step of expressing general needs to expressing specific needs you can help by creating situations in which s/he can practice communicating about specific objects or needs. Use your own knowledge of your child's likes and dislikes to create situations in which your child will be motivated to communicate. The purpose of this exercise is to provide repeated opportunities to engage in communication that is successful and motivating. Even when your child is not able to communicate successfully, you should demonstrate how to communicate and give your child what s/he is wanting. Following are some examples of these situations.

Put a favorite food in a jar that your child can't open. Show your child the jar so that s/he can see the food then set it within your child's reach. See what your child does to communicate. S/he may just reach for it or may do something more specific such as putting your hand on the jar. Accept any of these gestures as communication and give the food to your child. If your child does not communicate at all, then demonstrate how to communicate by taking your child's hand and moving it to the jar so that s/he is reaching, then give him/her the food. Remember, make these situations fun and successful for your child. Knowing that communication can be rewarding and will make your child more likely to communicate in the future.

Other situations that might motivate your child are putting a toy in a high place so your child has to communicate to get it. You can give your child a favorite puzzle but keep a piece out so s/he has to reach to you to get the piece. Create a social routine, such as a tickle game. Try saying something like "1, 2, 3," or "I'm going to get you." and then tickle your child until s/he begins to anticipate when you are going to tickle. Eventually, when your child has learned the routine stop and see if your child will do something to get you to start again.

3. Using gestures: Gestures include pointing, looking back and forth between an object and another person, shrugging the shoulders, and other common gestures. This is a type of communication that is usually difficult for children with autism and often doesn't emerge until later in development. Gestures are difficult for children with autism because they usually communicate social information or information about internal ideas. For example, children often point to show interest in or shrug to communicate what they don't know. Knowledge and interest are internal ideas. Many children with autism may skip this step of communication development or begin to use gestures after having developed more complex forms of communication.

4. Joint Attention: One aspect of gesture that is difficult for children with autism is the use of joint attention. Joint attention is the ability to share attention with another person while both people are paying attention to the same object. For example, pointing to an object of interest is joint attention.

One way to help children develop joint attention is to make this type of communication more concrete. For example, you might touch the object you are pointing to instead of pointing from a distance.

An activity that can contribute to the development of joint attention is to create situations in which joint attention is more likely to occur. For example, reading picture books is an activity which often involves joint attention. While reading the book, point to a picture and name the picture while looking back and forth between the book and your child. This demonstrates to your child a form of joint attention that s/he can copy.

Creating surprises also may prompt joint attention. There are several ways to do this. You may put several toys that are interesting to your child in a bag and take turns pulling them out of the bag. Or you may hide special toys around the house and have a hunt for them. When you find the toy or pull it out of the bag exaggerate your response and very deliberately look back and forth between your child and the toy or point and make a simple verbal statement such as, "look! a rabbit!" When you exaggerate being surprised and sharing that surprise with your child s/he is more likely to notice this type of communication.

Finally, you can create situations in which something unexpected happens. It takes some creativity to make this happen, but you know your child best and are in the best position to do this. For example, if your child loves M&Ms and hates cheerios, you could pretend to be pouring out cheerios for cereal but have M&Ms fall out of the box. If you have a remote control toy, you can activate the toy when your child is not expecting it. Once again, creating this type of situation gives you opportunities to practice joint attention rather than waiting for these circumstances to arise naturally.

5. The next stage of communication is one that is usually helpful for children with autism but is not usually seen in typically developing children. This stage is the use of visual information to communicate. This type of communication is most often used to request something that the child wants. Although you may want your child to communicate about practical things, such as going to the bathroom, it is best to begin with favorite foods or objects that are most motivating to your child.

Children can use a variety of different means to communicate in a visual way. For example, a request for a drink could be communicated by giving an object (e.g., a cup), a picture (e.g., a picture of a cup), or a written word, (e.g., the word 'cup' either written by the child or written on cards that the child can choose from.). When your child wants something, have him/her give you the object, picture, or word and then respond by giving what s/he has asked for. At first you might have to help your child by giving helping him or her to give you the visual symbol. This is easiest if two people work together. One person helps your child to give the visual symbol and the other person responds by giving him or her the item requested. It will also help your child to learn to use these visual communication strategies if the visual symbols are easily available (e.g., keeping food pictures on the refrigerator door). The purpose of using visual means to communicate are:

A. Visual communication is usually more meaningful for children with autism because they understand things that are visual better than things that are spoken.

B. Because visual communication is more meaningful, it is also usually more motivating to children with autism. Using these systems they get to see "communication in action" and what communicating is all about.

C. By physically handing something to another person your child is reminded that communication involves other people.

D. Visual communication is often a bridge toward more complicated or symbolic types of communication, such as words.

6. Signing: Parents often ask if sign language is an effective way to communicate visually. Signs are visual but are generally a very abstract way to communicate just like words. For example, there is a sign

for cookie, but there is nothing obvious about the sign that shows your child what it means. Signs also require your child to think about two ideas at one time. If your child wants a cookie s/he must remember that s/he wants a cookie at the same time that s/he is remembering the correct sign. By giving you an object or picture your child only needs to think about giving you the visual cue. The picture or object will remind your child why s/he is communicating. Because signs are abstract they may not be as meaningful as objects or pictures. Children with autism may learn to sign as a routine for asking for things but may not understand the meaning why s/he needs to sign. When communication is not meaningful, your child is less likely to try to communicate.

7. The last basic stage of communication is using words. Of course there is a whole progression in developing language from using single words to using sentences. Again, as your child begins to develop language, you should create an environment that makes language successful. Some points to remember that may be helpful to your child as s/he develops language include the follow.. g.

a. At first, your child might use his/her language inconsistently. For example, if your child knows the word cookie, but only uses it inconsistently, allow him/her to use another means such as pointing when s/he can't remember the word. Developing vocabulary is much easier than learning the process of communication. It is this process that is hardest for children with autism to understand. Withholding an object when your child doesn't say a word will be frustrating and may make communication less motivating. Honor any type of communication, even when you think your child might be able to do more. Some parents worry that their child will manipulate them and try to get away with not talking, but once it is mastered, talking is usually the easiest way to communicate. When your child learns to talk, therefore, s/he will probably choose talking over other types of communication. But this learning process will be inconsistent at first so be patient.

b. You can provide good models for your child by speaking simply. Give your child models of the language that is within his/her capabilities. For example, if your child is learning to ask for a cookie, say the word "cookie" when s/he is trying to talk. Your child's ability to say phrases, sentences, and other types of communication such as please and thank you, will come later. Say only what you expect your child to say so that s/he can hear the words that s/he will actually use.

c. Finally, make sure that you encourage spontaneous communication. Your child will learn to label pictures and objects more easily than s/he will learn to spontaneously seek you out and ask for something. Again, creating situations in which your child needs to communicate (such as the food in the jar) will give your child lots of occasions to practice talking without you having to prompt. Also making visual images available even after your child begihs to talk will help remind him/her of the word and of reasons to communicate. This will minimize the number of times that you need to prompt your child by saying the word first. If you find yourself having to tell your child what to say so that s/he will repeat the word, you may need to consider moving to an easier form of communication, so that your child can communicate without needing any reminders. Otherwise your child may learn to depend on reminders from you when communicating.

<u>Communication Pointers:</u>

When your child is learning to communicate, there are several points to keep in mind.

1. Make communication easy so that communicating is motivating. At this stage of development it is most important to make communication easy for your child so that s/he experiences success when communicating. Once your child is successful at communicating, s/he is more likely to understand and develop more sophisticated ways of communicating.

2. Pick a type of communication for your child that is meaningful. If your child needs a lot of concrete visual information to communicate then use objects to help him/her communicate. If your child is able to understand pictures but has trouble using words, then use pictures. Your child will not be able to communicate successfully unless the form of communication that you teach, is a form that s/he can understand.

3. Your child's communication development is likely to be uneven. Your child might start communicating using physical movements such as taking your hand to show you what s/he wants. Then s/he might start to use objects, then pictures, and then words. At any point in this progression, however, your child might use more than one method. Your child might use words some of the time and pictures at others. If your child is using several different levels of communication you should respond to all of them instead of "holding out" for the highest level. You should model the type of communication you want your child to use but still respect his or her initial response so that communication continues to be successful and motivating.

4. The most important form of communication to teach is the form that your child will use spontaneously. If your child will show you a picture but will only do so when you say, "show me cookie," then your child is not communicating spontaneously. If this is the case, use an easier way to communicate and give your child lots of practice using that method. Teaching your child vocabulary words can be helpful. However, if your child doesn't use his vocabulary spontaneously, then the time will not have been useful. You will always need to spend as much if not more time teaching spontaneous communication than vocabulary. It takes more creativity to create an environment in which your child will communicate spontaneously. Your are, however, the best person to do this because you know your child well and are with him/her in many situations so you have many opportunities to encourage communication.

Understanding communication:

Understanding communication is just as hard to learn as expressing one's needs. The basic stages of understanding communication are the same as the stages listed above. Your child will understand simple gestures like holding out an object before s/he understands pointing or words. Your child also may need visual symbols like objects or pictures to help him/her understand words. Several considerations in learning to understand others include the following.

1. Don't assume your child understands words simply because s/he responds to them. Your child may be responding to your tone of voice, to one of your words but not all of them, to a visual cue (such as seeing you put on your coat when you say it's time to go), or to a familiar routine. In an unfamiliar situation your child might not understand the same words.

2. Your child's understanding of communication may not be at the same level as his/her expression of communication. For example, your child might understand some words, but only be able to use objects to communicate with you. In contrast, your child may use some words but may not understand many words and may need visual cues to help him/her understand.

3. Using visual cues will always help your child understand because visual thinking is probably a strength for your child. You may help your child understand your communication by holding the object you are talking about, using simple gestures such as pointing, or showing your child a picture.

4. When you are teaching your child to understand you, use simple words and lots of repetition. Before your child can understand the sentence, "This is a cookie," s/he will learn to understand the word, "cookie." You can give your child many examples of this word by using it every time s/he asks for a cookie and by using the visual cue of holding or pointing to the cookie.

Imitation

Imitation is one of the most important means of learning for typically developing children. This mode of learning is difficult for children with autism because it requires the child to pay attention to another person and to what that person is doing. Your child is probably able to do many of the actions involved in imitation tasks. S/he may not understand, however, that imitation is what is expected. For example, your child probably knows how to clap but if you want him or her to imitate you while clapping, you may have difficulty prompting this response. The hardest thing about imitation tasks is learning the process of imitation and that imitation can be used to learn new things. As with anything that you teach, start with the easiest ways to imitate and then progress to more difficult forms.

1. Some infants imitate facial movements instinctively while they are learning about people's faces. The first type of intentional imitation that children learn, however, is the imitation of simple actions using objects. Simple object imitation involves actions for which the object is intended and objects which have qualities that attract your child's attention. Shaking a rattle is a good example. Rattles are easy to shake because that is what they are supposed to do. They make a noise so your child is more likely to pay attention. And your child will probably be able to imitate by accident because the rattle is very likely to make a noise if your child moves it at all. Another example of easy imitation is rolling a toy car. While you roll it, make car noises so that your child will pay attention to what you are doing. When your child does imitate, even if s/he only imitates part of what you do, respond enthusiastically so that s/he knows that this is what you wanted. This will be the beginning of learning what imitation is all about.

2. The next type of imitation it the imitation of actions that object's don't usually perform. This might be making a drumstick roll across a table instead of hitting a drum. Again make noises or do whatever might make your child pay attention to the activity and have fun doing it. Other examples include making a comb scrape the table, making a car hop on the table, or making a spoon hit the table. Choose objects that are of interest to your child.

Taking turns while you imitate is harder than imitating at the same time, it is best to use two identical objects when imitating. Common household objects, such as spoons, toy blocks, or toothbrushes can be used for any of these activities.

3. Of the simple types of imitation, it is most difficult to imitate actions which your child cannot see him or herself perform. For example, it is difficult to imitate holding a puppet over your head because your child cannot see whether or not s/he is imitating correctly. It will take extra time and practice for your child to learn this type of imitation activity.

4. Object imitation can take more complex forms. If your child understands nonverbal visual activities such as matching colors and building with blocks, play imitation games with colored blocks. For example, build a tower with three colored blocks and then give your child three identical blocks and encourage your child to imitate your tower.

5. Imitation of body movements usually follows object imitation. Imitation of body movements is more difficult because it requires that your child remember what you have done and then imitate that action. You should begin with easy movements that your child can see you perform and see him or herself perform. For example, imitating clapping is a good place to start. Clapping is something that many children do spontaneously. Clapping makes noise, and you can see other people doing it while you are doing it. Other examples are hitting the table, waving your hands, and flying with your arms. It is usually easier to start with large movements before moving to smaller movements such as wiggling your fingers.

More complex movements that are harder to see should come later. For example, touching your nose or putting your hands on your head will be harder for your child because s/he can not see whether the action is being performed correctly.

6. A more complicated form of imitating body movements is to imitate two actions at one time. For example, you might have your child touch his/her shoulder and stick out his/her tongue at the same time.

7. Imitating a sequence of actions is probably the most difficult type of imitation. Sequential imitation should start with two simple movements such as clapping then banging the table. Then move on to longer sequences and more complicated movements. Learning this difficult type of imitation may be helpful to your child because it will help to introduce the idea of doing things in a specific order. Learning to put a series of movements into the proper sequence can be translated into many other activities such as completing two step tasks or counting.

Play

Many people think that "play is play" and that there is nothing about play that a child needs to learn. All children, however, go through stages in the development of play skills that range from playing with simple toys alone, to playing games with other children. Children with autism have a very difficult time learning to play. In fact, it is usually easier for a child with autism to work successfully than to play successfully.

Early Social Play:

1. The first type of infant play is face to face baby games. Games such as peek-a-boo are in this category. Children with autism often have difficulty with social games. They have more success in these games if there is a physical component, such as tickling, and if you make the game very familiar by repeating it the same way every time you do it. An example of a repetitive social game would be to slowly say "1,2,3" as you approach your child and then start to tickle when you get to the number three. After many repetitions, your child will become familiar with this routine. S/he will start to anticipate what you are going to do and might start doing some parts of the routine with you, such as counting with you, or pulling on your hands to get you to the tickling part of the game.

2. Another type of social play is imitation. Parents usually imitate their infants as a form of early play and interaction. Some children enjoy being imitated and this type of play may be less socially complicated for children with autism. Remember that in this type of play you are imitating your child instead of asking him or her to imitate you. This type of imitation may be most noticeable to your child if you use two sets of identical toys and imitate your child's actions with objects rather than only imitating body movements.

Nonautistic children usually develop social play skills first and then learn to play with toys. This sequences exists because, usually social development progresses more quickly than motor development. Children with autism often develop play skills in the opposite order because, relative to social skills, motor skills are usually a strength. Therefore, children with autism usually learn toy play before social play.

Toy Play:

3. The first stage of toy play is learning to use "cause and effect" toys. These toys create an observable effect when a child engages in a specific action. The action might be very simple, such as shaking a rattle, or it might be more complicated, such as spinning a dial on a pop-up toy. This type of toy teaches children that their actions can cause specific observable events. Children will become more interested in toys when they learn that they can make toys do fun things. This cause and effect lesson is an important concept for other types of learning as well.

Toys are easiest to use if their effect is very obvious. Toys that are easy for your child to manipulate will also make play more successful. For example, if small movements are difficult for your child, choose a toy that requires easy motions like pushing a big button. Toys will be more motivating if you make sure that the toy's action is pleasant for your child. For example, if your child enjoys music, find a toy that plays a song when a button is pressed.

If your child has difficulty learning to use a toy you might need to demonstrate several times by playing with the toy and pointing out what it does. You might also have to move your child's hand so that s/he makes the correct motion. This will help your child learn which movements are most important when playing with that toy.

4. The next type of toy play is learning to use toys that do not have an obvious effect or a clear purpose. This type of play is more difficult because it requires the child to decide what the toy should do instead of performing an action that is dictated by the toy's design. When teaching your child to use this type of toy it is important to use toys that are interesting to your child. Since play is hard for autistic children to learn, using materials that are motivating will make your child more interested in playing.

Examples of simple toys that are not cause and effect toys are cars and blocks. These toys have rather

obvious purposes from our perspective, but children with autism may have difficulty seeing the purpose of this kind of toy. When they don't understand the purpose, they will create their own uses for the toys. It is fine for your child to use toys in a way that makes sense to him or her, such as lining up the toys. You do not need to stop your child from engaging in repetitive play. Instead, think of these activities as giving your child a wider variety of things to do with toys.

Before teaching any play skill, you should make sure that your child has the motor skills to play with that toy. If your child has not yet developed fine motor skills that are precise enough to stack blocks, then it will be frustrating to both of you if you try to teach block building. So pick toys that are both interesting and easy to manipulate. Following are two examples of how to use structure and visual cues to help your child learn to play with toys.

A. Cars: To make the typical purpose of the toy more clear, add some visual cues. For example, if you are teaching your child to play with cars, make a simple road on a piece of cardboard or with a piece of track from car racing sets. The road should have an obvious start, such as an outline of the car, and an obvious finish, such as a box the car disappears into. Demonstrate for your child that the car starts in one place and moves to the end, and that it gets there by rolling on the road. You might make car sounds to teach your child another aspect of car play that other children use.

Once your child is able to imitate moving the car on a simple road, you can use more complicated roads with turns. When your child is using more difficult roads, you might place landmarks along the road such as a house or gas station and teach your child to go to each landmark on the road. You might also make roads that have more than one choice so that you child can choose which road to follow. As you are teaching, you are making the play more and more complex by giving your child more choices but you are still providing the structure that makes the play more meaningful to your child. Eventually, you may be able to do away with the road and simply set up landmarks around the room for your child to drive through. In the end your child might learn that s/he can set out the landmarks on his or her own and create his or her own roads. Always keep in mind, however, that the structure you provide for your child makes the toys more meaningful. If your child becomes less interested in the toys when you remove structures such as roads and landmarks, this may indicate that your child still needs some structure.

B. Blocks: You can follow a similar sequence when teaching play with blocks. You might want to use large blocks so that it is easier for your child to manipulate them. The first thing many children do with blocks is to line them up. You can start teaching by helping your child see that there are other things to do with blocks. You can teach your child to stack blocks by demonstrating how to put one block on top of another block. Start with very short towers. You might need to use some physical boundaries such as a clear tube that you child can put the blocks into. Then s/he can see that the blocks are going on top of each other. This type of physical structure teaches your child a new way of playing with blocks but does so in a way that is easy for your child to succeed because s/he can't knock them down. Sometimes it is difficult to play with blocks because there are so many blocks. Your child might be overwhelmed by the number of blocks that are scattered around. It will be easier for your child to focus attention on what is being done with the blocks if all the extra blocks are in a single container or if you hand your child one block at a time.

If your child can fill up a tube with blocks then you might try to glue one block on a piece of cardboard so that there is a stable base for your child to build with. It might also be helpful for your child to see you build a tower. This is a task that requires imitation skills, so the more your child develops imitation skills, the easier it will be to teach this type of play. Once your child can imitate a tower, you can start building other simple structures, such as two towers next to each other. If your child becomes very good at imitating you, you might try showing him a model of a structure that has already been built and see if s/he can imitate it by just looking at the finished product. If your child has difficulty with imitating, you could provide other visual cues to help demonstrate where the blocks go. For example, you might draw a pattern of blocks on a piece of cardboard so that there is a square for each block. Then your child can match the blocks to the squares. Like the road, providing grids for matching is a structure that will help your child play. Once your child is building a few simple structures with blocks you might put out two models or two matching boards and let your child pick the one s/he wants to complete. Once your child has the idea that s/he can pick what to do you can increase the number of models to choose from.

The next step might be to teach your child to add some of his or her own ideas. For example, it will be easiest for your child to match pictures that have the same color and size as your child's blocks. After awhile, you might make your models out of plain blocks and give your child blocks with several different colors so that s/he starts to develop the idea that the structures do not have to be exactly alike. As you are teaching, you need to strike a balance between doing things the same way every time so that your child has a lot of practice, and introducing some variation so that your child does not get stuck on the idea that things have to be the same every time. The ultimate goal with all play is that your child will take initiative to do what s/he wants to do with the toys. Build choices into your play time as soon as your child has developed some basic skills. If your child can choose a model and choose certain colors on his or her own, then start giving him one container with a few blocks but no model and see what s/he does. Again, your child will need structure to help with play so don't remove all of your help at once. For example, you might give your child more choices of what to build but still give him or her a limited number of blocks.

5. The next level of play is learning to put two different types of toys together in the same activity. This might be putting a person in a car and driving the car. It could also be putting a doll into a bed and covering the doll up. This is an initial step toward pretend play but it does not require more sophisticated imagination skills because the toys are used in a manner that they are commonly used. For example, if you took a stick and pretended that it was a person and put it into a car, then you would be using an object to represent something that it is not. This type of play would require more imaginative skills. If you use an actual doll or figurine, then the play is more visually clear and requires less imagination.

Start by using visual models, limiting the number of materials, encouraging your child to imitate, and using visual cues to help your child learn this skill. Visual cues often require some creativity on your part since they are not usually necessary when nonautistic children play. Using the road example, you might add the visual cue of placing the toy person at one of the stops that your child already uses. You might also put a picture of the person at the beginning of the road where you have already placed the picture of the car. At the end of the road place a house next to the garage so that the person goes into the house when the car goes into the garage. This is a visual reminder of a routine that is familiar: getting into your car and going home.

You can use similar cues in doll play. For example, it might be helpful to use two dolls and beds. One doll might already be in bed so that it is more clear what to do with the second doll. Using toys that physically "look right" to your child will also make this type of play more successful. For example, using a bed that is the right size for the doll will make it easier to see that this is where the doll goes. Or using figures that are made to fit into the car will make it easier to see that the figure is supposed to ride in the car.

As your child masters this simple routines, introduce more steps in the same routine. For the car it might mean putting several people in a bus instead of one person in a car. Or you might have the person stop at a gas station on the way home. This is easiest when you have a gas pump toy that has a nozzle for toy cars. With the dolls you might introduce the routine of kissing the doll and then putting it to bed, or brushing the doll's hair before putting it to bed. Again, you are using objects that are used in everyday routines so it is clear to your child what the objects are for.

Many other toys can be successfully adapted so that they are more visually clear. Shape sorting boxes can be more visually clear if you outline each hole with the color that matches the block that fits into that hole. If your child enjoys animals you can create a corral, a barn, and a fenced path going from the corral to the barn. This makes clear to your child an action that s/he can do with the animals. Dinosaurs could walk from cave to cave. A stuffed rabbit can hop down a road, stop to eat a carrot, and then hop to a hole.

6. When your child has learned to play with a variety of different toys you may be surprised to find that s/he does not spontaneously take out the toys to play. This may occur even if your child enjoys playing when you get out the toys. It is often difficult for children with autism to know how to start an activity. You can help overcome this difficulty by giving your child a list of toys to play with. For example, you

might put three pictures in a row on top of your child's toy box. The first picture might be a picture of cars, the second a picture of blocks, and the third a picture of a favorite book. Have the materials that your child needs for each type of play placed in separate containers so that s/he doesn't need to organize the materials before s/he gets started.

Play with Peers:

7. While your child is mastering different types of play you might begin to introduce peers into his or her play. Your child will be most successful if peers are included gradually. New elements to play, such as peers, should be introduced step by step. Initially children simply play in the same room together. They do not play with the same toys nor do they interact. They simply play in proximity to each other. Children with autism may need more time at this step than nonautistic children because the presence of other children can be distracting or upsetting to children with autism.

8. The next type of peer play is playing side by side with the same materials. For example, two children might both be playing with legos, but they are not sharing the legos or building the same thing. Some activities that are particularly conducive to this type of play are sand boxes, water tables, a box full of similar toys, such as cars, or painting on the same mural.

9. After children use the same materials at once they might start to share materials but continue to play side by side. For example, the legos might be in one container from which each child is taking his or her blocks. Even though your child is playing near or even with a nonautistic peer, s/he may still use the structures that s/he has learned in individual play. For example, the two children might both be using legos but your child might be building something by matching the blocks to a picture, while the other child is playing without a picture as a visual guide.

10. Once children can share materials they may be ready to play together. When you begin this stage with a child with autism it is often helpful to use a peer who is older and is more likely to be patient. Again it is best to introduce this change in the context of an activity that your child already does well. For example, if your child enjoys and is successful at playing with blocks, this would be a good activity during which to include a peer. Again, if your child uses certain structures such as fenced in paths for playing with animals, s/he should continue to use these structures. Most peers would be unlikely to object to these structures or might even find more complex ways to incorporate them into play.

Visual cues can be used to teach other game playing skills such as turn taking. For example, if two children are playing blocks together the blocks can be in one container and the children can take turns passing the container back and forth between them.

11. All children begin playing games by trying very simple games. Some games may need to be further simplified for children with autism. Children with autism need simple games because the social demands of game playing are so great that they will be more successful and have more fun if it is very easy to master the mechanics of the game. For example, the game Memory can be played as a matching game with all the cards facing up and each child taking turns putting two matches together. Old Maid can be played in this way too. UNO can be played by only matching colors without worrying about matching numbers or following the other instructions on the cards. Board games can be played without dice or spinners if each player moves the same number of squares each time. Again this simplified play often works best with older children who realize that it is not necessary to win all the time.

12. Involving peers in the play of children with autism has not always led to significant increases in social skills. Introducing peers gradually will help to ensure that the autistic child experiences success in social interactions. If the child with autism is feeling successful during play, the nonautistic child will also enjoy playing more. Nonautistic peers are often helpful teachers of social skills but, like any teacher, they benefit from information about their autistic peers. Simple instruction can be given to peers to help them understand why children with autism behave in the way that they do. It is particularly helpful to teach peers that children with autism do not always understand words and that children with autism may need more persistent efforts to get them to stay with a social activity.

Things to Remember

1. The most difficult aspect of learning play, to imitate, and to communicate is learning the concept or "why" of these areas of development. Children with autism do not inherently understand the meaning or importance of any of these skills. This is why it is important to start at a level where your child can experience as much success as possible. If your child is not successful at the activities that you try, or is not able to complete them independently, it may be necessary to try a simpler activity. This should not be considered a set back. Children with autism can be inconsistent in their ability to use their skills. Your child may be able to communicate with single words on his or her best days but may need to use pictures on other days. Or your child may be able to build towers with his or her sibling some of the time but at other times can only be successful when playing alone. Making sure that your child masters skills at each level may mean that progress will be slow, but this approach will ensure that what your child learns is meaningful and useful.

2.There are actually many types of development that could be reviewed in this step by step manner. For example, social development, like nonverbal thinking, imitation, communication, and play skills, emerges in a sequence of developmental steps. At early stages of development, however, many types of skills are related. Improvement in play skills and communication will promote social development. Improvement in nonverbal thinking will help your child understand toys. Remembering to emphasize your child's strengths and interests in all areas is important because the development of his or her stronger areas will promote development in weaker areas.

3. As your child passes through each stage of development and takes on more complicated activities, remember to make each advancing step a small one. Change each activity a little bit at a time. For example, if your child can successfully communicate about food using pictures, you may want your child to start using words and start communicating about other topics. This will probably be too many changes at one time and will lead to frustration. Choose only one thing to teach at a time. For example, introduce a wider variety of pictures for your child to communicate about but wait to teach a new type of communication such as talking.

4. Remember that visual skills are usually a strength for children with autism. It may take some extra work or creativity to teach using visual techniques. Emphasizing this type of learning, however, is likely to increase your child's ability to learn and understand at all levels of development.

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Kerry Hogan
TEACCH Psychology Fellow

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